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March 31, 2011
(PBW Project No. 1352)

VIA FEDERAL EXPRESS

Mr. Gary Miller
Remedial Project Manager
U.S. Environmental Protection Agency, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Ms. Barbara Nann
Assistant Regional Counsel
U.S. Environmental Protection Agency, Region 6
Superfund Division (6RC-S)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: FINAL BASELINE ECOLOGICAL RISK ASSESSMENT REPORT
GULFCO MARINE MAINTENANCE SUPERFUND SITE
FREEPORT, TEXAS

Dear Mr. Miller and Ms. Nann:

Please find enclosed four (4) copies (Mr. Miller) and one copy (Ms. Nann) of the Final Baseline Ecological Risk Assessment (BERA) Report for the Gulfco Marine Maintenance Superfund Site (the Site). This report was prepared by URS Corporation (URS) on behalf of LDL Coastal Limited LP (LDL), Chromalloy American Corporation (Chromalloy), and The Dow Chemical Company (Dow). An electronic copy of the entire report in Adobe® format is provided on the DVD transmitted to Mr. Miller herewith. In accordance with Paragraph 52 of the amended Unilateral Administrative Order for the Site, effective January 31, 2008 (the amended UAO), I certify that I have been fully authorized by these Respondents to submit this report and to legally bind these Respondents thereto. As you know, Parker Drilling Offshore Corporation is participating in the Site work, as well, under an agreement it reached with the Respondents.

This Final BERA Report incorporates EPA's comments on the Draft BERA report dated February 4, 2011 as provided in a March 1, 2011 letter from Mr. Miller. Those comments and our responses indicating how the comments have been incorporated into this Final BERA Report are attached to this letter. A redline-strikeout showing the text changes between the draft and final reports is also attached for your reference.

Please provide your approval of this final report at your earliest convenience. Should you have any questions, please do not hesitate to contact me at any time.

Sincerely,

PASTOR, BEHLING & WHEELER, LLC

Eric F. Pastor, P.E.
Principal Engineer

Enclosures

cc: Ms. Luda Voskov – TCEQ (2 copies)
Mr. Doug McReynolds – EA Engineering, Science and Technology
Mr. Ron Brinkley – US Fish and Wildlife Service
Mr. Don Pitts – Texas Parks and Wildlife Department
Mr. Andy Tirpak – Texas Parks and Wildlife Department
Mr. Tommy Mobley – Texas General Land Office
Mr. Larry Champagne - Texas Commission on Environmental Quality

Attachment A

Response to EPA and TCEQ March 1, 2011 Comments on Draft Baseline Ecological Risk Assessment (BERA)

Gulfco Marine Maintenance Superfund Site

Freeport, Brazoria County, Texas

Comment No.	Comment	Response
1	The Executive Summary shall mention that there were no food chain risks found (based on an earlier document, i.e., SLERA).	Text has been added to the Executive Summary clarifying that the SLERA determined that there were no upper trophic level risks associated with the Site.
2	Page 11, Point 2 and page 26, Section 3.3.4: The text shall read wetlands and pond surface water instead of just wetlands surface water.	Text has been amended as described in the comment.
3	Page 12, point 3: A reference citation from US Fish and Wildlife Service shall be provided for the findings of no threatened and endangered species.	The Final SLERA (Page 11) presents the assessment of Threatened and Endangered Species. The SLERA describes communication with Edith Erfling (USFWS) and a site visit by Gary Forsyth (USFWS) where he describes his observations from the site. No T&E species have been observed at the Gulfco Site. Text has been added to the end of Section 1.3 in the BERA.
4	Page 18, first complete paragraph, last sentence, and Section 3.3, first paragraph, fourth sentence: Reference samples are described as those that exhibit similar environmental conditions, except for the presence of Site-related COPECs. In the first paragraph under Section 3.3, reference location concentration exceedances of COPECs are mentioned. Clarification shall be included in the first paragraph under Section 3.3 to indicate that reference samples are not containing site-related COPECs. This relates also to the sentence on page 29, Section 4, the paragraph under the Points, the last sentence in the paragraph.	Clarification has been incorporated into the document that states that appropriate reference locations can contain chemicals that are a result of natural or man-made conditions, as described in EPA's *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites* (2002). This was also discussed at the December 1, 2010 meeting with EPA and TCEQ in Austin. The concentrations of those chemicals in the reference samples reflect area/regional background conditions (i.e., not influenced by the site). The following text has been removed from Page 18 and Section 7.0 (Conclusions) "except for the presence of site related COPECs" and replaced with: "but are not influenced by releases from the Site." Additional text has been added to Page 18, first complete paragraph: "Note that reference samples may contain background concentrations of one or more naturally occurring metals as well as anthropogenic constituents that are not related to Site activities (EPA, 2002)." Text has also been added to Section 3.3 and Section 4.0 (paragraph under the points).
5	Page 20, Analytical Chemistry Results, fourth sentence: The words "EPA's requested comparison with" shall be removed.	Text has been amended as described in the comment.

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Gulfco Marine Maintenance Superfund Site

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Comment No.	Comment	Response
6	Page 22, last paragraph, second sentence: Specific clarification shall be included for the SEM/AVS ratios for the site regarding that an expectation of potential bioavailability (i.e., except for EWSED08) is indicated due to SEM/AVS ratios exceeding 1.0 (as worded on Table 8); there shall be analogous consistency on page 30 (mentioning an exception of EWSED08). And, on page 30, Section 4.2, first paragraph, a sentence shall be added to mention the finding of SEM/AVS ratios as related to potential bioavailability in addition to the findings about excess SEM/foc indicating low bioavailability. Discussion shall be included to integrate these contrasting findings.	Additional discussion (as worded on Table 8) regarding the relationship between SEM/AVS ratios and ∑SEM/AVS/foc ratios has been added to Section 3.3.2 and 4.2.
7	Page 31, first complete paragraph, second sentence: Since there was a finding from the MLR statistical analysis of associations that there was a significant negative associate (indicating a potential effect) for zinc in the wetland sediment for Leptocherius plumulosus, clarification shall be included regarding analysis limitations and any implications (see also Sections 6 and 7).	Clarifying text has been added to Section 4.2 and Appendix C.
8	Page 31, bottom of the page, continuing onto page 32: The words "As previously mentioned" shall be removed, the words "site COPEC concentrations" shall be replaced with the words "any one physical and/or chemical parameter" and, on the next page, the word "metals" shall be replaced with "contaminants either inorganic or anthropogenic organic".	Text has been amended as described in the comment.
9	Page 32, Section 4.4: It shall be clarified in the paragraph at the bottom of the page that the surface water was for the wetland area.	Text has been amended as described in the comment.
10	Page 33, bottom of the page: It is not appropriate for a compound to be called a COPEC (which seems to imply site-related contaminant) if it appears at reference locations especially given that previously in the document (page 18), it was stated that the difference between a reference and site sample location was that there were no site-related COPECs at	Please refer to the response to Comment #4.The term "COPEC" at the bottom of Page 33 (Section 5.1.1) and the top of Page 35 (Section 5.1.3) has been modified to the term "chemical" to be consistent with the terminology used in EPA 2002.

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Comment No.	Comment	Response
	the reference location. Further consistently in terminology and clarification (to clarify that for a reference location any contaminants measured are not site-related) shall be included in the document. See top of page 35 as well as page 29.	
11	Page 34, Section 5.1.3, first paragraph, last sentence: Clarification shall be included for parameters considered for the statement made that the site and reference are similar in physical-chemical characteristics for both the soil and sediment areas.	The sentence referenced in the comment has been removed.
12	Page 39, Section 5.3.3: A potential explanation shall be provided for why Artemia testing failure (of controls) occurs at 96 hours, but not 48 hours nor 24 hours. Artemia was selected because of salinity tolerance and hardiness to harsh conditions, so it is unclear what is meant regarding fragility of the test organism.	The term "fragility" has been changed to "unreliability" in the referenced sentence and the text stating "combined with the harsh conditions (i.e., elevated salinities) of the Site surface water" has been removed. The assessment showed that the test was unreliable beyond a 48 hour test duration.
13	Page 40, Section 5.3.4, second paragraph: Explanations shall be provided for why sub-lethal effects caused by physical parameters of the sediment samples would likely be less evident in the shorter test.	The following text has been added before the last sentence in the second paragraph of Section 5.3.4: "Adverse effects, unless acute in nature, take time to become manifest and measurable, whether related to chemical presence or physical attributes (e.g., sediment grain size composition) in the organism's environment. The longer the bioassay test, the more exposure, and the more time there is for the adverse effect, be it slowed growth, delayed reproduction, or early death, to appear and be measured." Clarifying text has been added to the end of the paragraph clarifying why lower dry weight values are possible.
14	Page 40, Section 5.3.4, second paragraph: Regarding the last sentence of this paragraph, clarification shall be provided regarding whether it was the case that the outcome of a shorter-duration test was higher survival percentages and dry weight volumes among the replicates for both site samples and reference location samples.	The comment seems to be directed at the last sentence of the third, rather than the second, paragraph. The last sentence of the second paragraph states a supposition, while the last sentence of the third paragraph is describing a study's results. The following text was added after the last sentence in the third paragraph of Section 5.3.4: "Growth was not measured in the 10-day exposure tests, nor was reburial measured in the 28-day tests."

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15	Page 40, Section 5.3.4, third and fourth paragraphs: Further clarification shall be provided regarding applicability to the Gulfco site.	The following text was added after the last sentence in the first paragraph of Section 5.3.4: "The chronic exposure tests were selected as being the best measure of site conditions and potential toxicity from sediment samples for the Site." The following text was added before the first sentence in the third paragraph of Section 5.3.4: "Various studies were found in the literature to support the notion that variability (i.e., uncertainty) in toxicity testing results may be greater for chronic exposures, but toxic effects are likely to become more evident."
16	Table 1: For the Measures of Effects column, one row identifies specifically the contaminants, but the other 2 rows to not; consistency with the first row in specifically identifying the contaminants shall be provided.	Text has been amended as described in the comment for the "Measures of Exposure" column; however because of the number of individual PAHs and organochlorine pesticides as COPECs for the wetland sediment area and Intracoastal Waterway, the general categories of PAHs and organochlorine pesticides have been used instead of listing all of the individual PAHs or organochlorine pesticides. Note that the second row in Table 1 addresses the wetland sediment, Intracoastal Waterway sediment and wetland/pond surface water. Text under the "Measures of Effects" column does not identify specific COPECs, but lists COPECs as a general category for all three guilds.
17	Table 1: Given that fish are listed in Table 1, and the measure of effect for fish is exceedance of surface water benchmarks, there shall be a footnote using the language in the last sentence on the bottom of page 32 (Section 4.4).	Text has been amended as described in the comment.
18	Table 1: For the Measures of Exposure column, one row specifically identifies the contaminants, but the other rows do not; consistency with the first row in specifically identifying the contaminants shall be provided.	Text has been amended as described in the comment for the "Measures of Exposure" column; however because of the number of individual PAHs and organochlorine pesticides as COPECs for the wetland sediment area and Intracoastal Waterway, the general categories of PAHs and organochlorine pesticides have been used instead of listing all of the individual PAHs or organochlorine pesticides. Note that the second row in

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		Table 1 addresses the wetland sediment, Intracoastal Waterway sediment and wetland/pond surface water.
19	Table 1 and the text regarding the assessment endpoint for fish: Page 27 shall clearly address the endpoint for fish in the discussion of exceedances of surface water benchmarks as related to whether there is habitat for fish in the wetland and pond (intermittent) surface water (as is done at the bottom of page 32). And, to be consistent with the formatting of the other sections the heading (Ecological Setting, Analytical Chemistry Results, and Toxicity Results) on page 27 shall be bolded.	Text has been added to the end of the second full paragraph on page 27 "The original risk question that addressed the abundance, diversity, productivity and function of the fish community is not applicable because of the harsh conditions and intermittent presence of the surface water in a salt panne; however, the 48 hour toxicity tests using the brine shrimp as a test species addresses any potential toxicity to water column invertebrates that may inhabit the intermittent ponds." Bolding and italics has been added to page 27 as described in the comment to be consistent with the rest of the text.

References:

EPA, 2002. *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites*. EPA 540-R-01-003. September.